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RESEARCH AID

144

STATISTICAL ANALYSIS
OF PETROLEUM PRODUCTION
IN THE SOVIET BLOC



ORR PROJECT 25.194

24 January 1955

CENTRAL INTELLIGENCE AGENCY
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26 April 1955

CORRECTION

To Holders of CIA/ORR Project 25.194, Research Aid, Statistical Analysis of Petroleum Production in the Soviet Bloc, 24 January 1955.
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Page 18, Table 13, USSR, Natural Gas, 1930-40:

<u>For</u>	<u>read</u>
4,170	417
6,910	691
8,100	810
8,820	882
13,280	1,328
15,590	1,559
18,400	1,840
18,840	1,884
18,780	1,878
19,790	1,979
20,910	2,091

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STATISTICAL ANALYSIS OF PETROLEUM PRODUCTION IN THE SOVIET BLOC

I. Introduction

The purpose of this research aid is to provide a readily available source of reference for annual statistics on production of petroleum * in the countries of the Soviet Bloc. Crude oil is the most important component of petroleum production in the Soviet Bloc, and Tables 1 to 12 ** inclusive are devoted to crude oil. Table 13 *** covers the remaining petroleum components — natural gas and natural gas liquids.

All available published sources have been surveyed in an effort to obtain the best data possible for the compilations presented herein. No independent research has been conducted to determine the accuracy of the data given; their accuracy depends upon the sources cited.

Historical data on production of crude oil are essential to petroleum resource studies. Such data establish patterns and trends which make possible the determination of current productivity and remaining proved and potential petroleum resources. Historical data on production of crude oil in the Soviet Bloc have not been readily available heretofore. They are presented in this research aid in terms of metric tons and by geographic areas.

Published statistics on production of petroleum for the US and for other Free World countries are based upon aggregation of actual field shipments of the component covered: crude oil, natural gas, or natural gas liquids. Such statistics are accurate within the limits of the physical measuring methods used and the statistical techniques of aggregation. Unavoidable errors tend to be compensative so that the annual petroleum production figures for the US are probably accurate to within 1 percent. The error for other Free World countries might be as high as 3 percent.

Published statistics on petroleum production for countries of the Soviet Bloc are based upon the same methods of aggregation, except for recent years. Most of the annual prewar statistics on petroleum production for the USSR reveal aggregation by fields, and in some cases by months, to give the USSR annual totals. Likewise the European Satellite data are aggregative up to the time the countries were incorporated into the Soviet Bloc. Such data, as presented in this research aid, are probably accurate within a range of plus or minus 3 percent.

For recent years, published statistics on petroleum production as presented in this research aid for Soviet Bloc countries are based upon a completely different concept and approach from that described above.

* In this report, petroleum includes crude oil, natural gas, and natural gas liquids.

** Tables 1-12 follow on pp. 3-17.

*** Table 13 follows on p. 18.

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There are available no data which can be clearly related to actual field shipments or which can be aggregated into regional or country totals. Various types of fragmentary qualitative and quantitative data are analyzed by the intelligence agencies and compared with over-all claims of "gross production," usually expressed in indexes or percentages, announced by political spokesmen. The estimates derived in this manner are believed to be fair approximations of the actual production. Obviously, there are possibilities for considerable error in such estimates. A judgment appraisal of the probable range of such error is plus or minus 10 percent. All such recent data are indicated in this report as subject to revision when more accurate data are available. Such revision is viewed as a continuing function of the intelligence analysts engaged in Soviet Bloc petroleum studies.

Table 1 summarizes crude oil production by countries in the Soviet Bloc (including the Soviet Zone of Austria) by years for the period 1945 to 1953. No production of crude oil, natural gas, or natural gas liquids has been reported from East Germany. Current exploratory effort in that country may result in production of these petroleum components.

Tables 2 to 12 inclusive show production of crude oil by years since the beginning of production, for each oil-producing country in the Soviet Bloc, including the Soviet Zone of Austria. The production data are distributed by economic regions * for the USSR, Poland, Rumania, and China. For the USSR, the data are presented in two parts: Table 2, covering the entire period up to 1940 inclusive, and Table 3, covering the years 1941 to 1953. The latter data are selected from the best available published sources but are subject to revision when more accurate data become available. Likewise the data for Poland and Rumania are presented in two tables. For Poland, Table 8 covers the entire period through 1947 for which the data are firm, and Table 9 covers the period 1948 through 1953 and may be subject to later revision. For Rumania, Table 10 covers the entire period through 1947, and Table 11 covers the years 1948 to 1953 inclusive. For China, Table 12 covers the period 1937 through 1953. The data in Tables 10, 11, and 12 are subject to later revision. For the remaining countries, production data which are subject to later revision are indicated by footnote.

Table 13 shows the available published data on the production of natural gas and natural gas liquids in the countries of the Soviet Bloc. None of these data are available for Albania and Bulgaria. Probably there is no commercial production of these petroleum components in these two countries. The period covered in Table 13 is from 1930 to 1953. Some published data are available for years prior to 1930, but the quantities are small and of minor significance. The data in Table 13 are subject to revision and to completion for those years in this time series for which published data are not available.

* The term *region* in this research aid refers to the economic regions defined and numbered on CIA Map 12048, 9-51 (First Revision, 7-52), USSR: Economic Regions.

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II. STATISTICAL DATA

TABLE 1

Production of Crude Oil in the Soviet Bloc by Countries
1945-53*Million Metric Tons*

Country	1945	1946	1947	1948	1949	1950	1951	1952	1953	Average Annual Growth, 1948-53 (Percent)
USSR ^a	19.4	21.7	26.0	29.4	33.6	37.6	41.6	45.6	49.6	11.1
Albania ^b	c	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	13.3
Austria ^d	0.4	0.8	0.9	1.0	1.3	1.5	2.3	2.8	3.1	26.3
Bulgaria ^e	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	c	c
Czechoslovakia ^g	c	c	c	c	c	c	0.1	0.1	0.1	13.1
Hungary ^h	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.6	0.6	3.8
Poland ⁱ	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	9.5
Rumania ^j	4.7	4.3	3.8	4.4	4.8	5.5	6.7	8.0	9.0	15.4
China ^k	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	40.6
Totals	<u>25.4</u>	<u>27.9</u>	<u>31.8</u>	<u>35.7</u>	<u>40.8</u>	<u>45.7</u>	<u>52.0</u>	<u>57.9</u>	<u>63.3</u>	<u>12.2</u>

^a See Table 3, below.^b See Table 4, below.^c Less than 0.05 million metric tons.^d See Table 5, below.^e See Pages 9 and 10 below.^f Production started in 1953.^g See Table 6, below.^h See Table 7, below.ⁱ See Tables 8 and 9, below.^j See Tables 10 and 11, below.^k See Table 12, below.

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TABLE 2

Production of Crude Oil in the USSR by Economic Regions *
1821-1940

Thousand Metric Tons

Year	Region Ib		Region III*		Region IV		Region V		Regions VI and VII		Region Xa		Region XII		
	Crimea	Ukraine	Grosnyy	Dagestan	Maykop	Kuban	Total	Baku and Georgia	Volga and Urals	Emba	Turkmenneft'	Sredaz-	neft'	Total	Sakhalin
1821-71 *	8	1	1	1	36	44	317	26	... ...	...	1	2	23	6	361
1872	1	1	1	1	1	2	67	67	... ...	...	1	2	23	6	27
1873	1	1	1	1	1	2	3	81	... ...	...	2	2	23	6	70
1874	1	1	1	1	1	4	5	105	... ...	...	2	2	23	6	86
1875	1	1	1	1	1	1	2	183	... ...	...	2	2	23	6	134
1876	1	1	1	1	1	2	3	248	... ...	...	2	2	23	6	191
1877	1	1	1	1	1	2	3	329	... ...	...	3	3	3	3	254
1878	1	1	1	1	1	1	3	395	... ...	...	5	5	5	5	334
1879	2	2	2	2	2	5	5	343	... ...	...	5	5	5	5	403
1880	3	3	3	3	2	1	3	656	... ...	...	4	4	4	4	353
1881	2	2	2	2	2	5	7	818	... ...	...	2	2	2	2	663
1882	2	2	2	2	2	6	8	983	... ...	...	1	1	1	1	827
1883	1	1	1	1	1	13	14	1,460	... ...	...	4	4	4	4	992
1884	1	1	1	1	1	18	19	1,884	... ...	...	1	1	1	1	1,478
1885	1	1	1	1	1	17	19	1,896	... ...	...	1	1	1	1	1,905
1886	2	2	2	2	2	17	19	1,876	... ...	...	1	1	1	1	1,896
1887	2	2	2	2	2	17	19	2,327	... ...	...	1	1	1	1	2,359
1888	2	2	2	2	2	21	24	2,986	... ...	...	13	13	13	13	3,015
1889	5	5	5	5	23	28	3,249	... ...	...	5	5	5	5	3,282	
1890	6	6	6	6	29	35	3,738	... ...	...	5	5	5	5	3,779	
1891	7	7	7	7	18	25	4,498	... ...	...	3	3	3	3	4,526	
1892	5	5	5	5	24	29	4,657	... ...	...	3	3	3	3	4,689	
1893	8	8	8	8	137	145	5,380	... ...	...	3	3	3	3	5,528	
1894	86	86	86	86	20	106	4,807	... ...	...	1	1	1	1	4,915	
1895	465	465	465	465	22	487	6,255	... ...	...	1	1	1	1	6,743	
1896	385	385	385	385	23	408	6,384	... ...	...	1	1	1	1	6,793	
1897	301	301	301	301	23	324	6,949	... ...	...	1	1	1	1	7,274	
1898	292	292	292	292	19	311	8,013	... ...	...	6	6	6	6	8,330	
1899	405	405	405	405	14	419	8,533	... ...	...	5	5	5	5	8,957	
1900	502	502	502	502	5	507	9,865	... ...	...	6	6	6	6	10,379	
1901	563	563	563	563	5	573	10,978	... ...	...	1	1	1	1	11,561	
1902	560	560	560	560	6	566	10,503	... ...	...	10	10	10	10	11,079	
1903	550	550	550	550	5	555	9,853	... ...	...	5	5	5	5	10,413	
1904	686	686	686	686	722	724	10,181	... ...	...	8	8	8	8	10,887	
1905	722	722	722	722	722	724	6,783	14	14	14	14	7,555	

* Footnotes for Table 2 follow on p. 6.

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TABLE 2 (Continued)
Production of Crude Oil in the USSR by Economic Regions *
1821-1940

Region Ib		Region III*		Region IV		Region V		Regions VI and VII		Region Xa		Region XIb		Region XII	
Year	Ukraine	Crimea and Ukraine	Groznyy Dagestan	Maykop	Kuban	Total	Baku and Georgia	Volga and Ural	Emba	Turkmenneft	Sredaz-neft*	Total	Sakhalin	USSR Total	
1906	637	1	638	7,452	..	..	10	70	80	..	..	8,170	
1907	649	3	652	7,937	..	..	13	52	65	..	..	8,654	
1908	854	3	857	7,814	..	..	21	46	67	..	..	8,738	
1909	935	13	948	8,302	..	..	30	14	44	..	..	9,294	
1910	1,214	23	1,237	8,232	..	..	128	29	157	..	..	9,626	
1911	1,233	130	1,363	7,538	..	..	16	217	41	258	..	9,175	
1912	1,072	152	1,224	7,801	..	..	16	212	39	251	..	9,292	
1913	1,207	89	1,296	7,637	..	..	108	129	23	152	..	9,193	
1914	1,613	74	1,687	7,101	..	..	273	82	33	115	..	9,176	
1915	1,445	138	1,583	7,481	..	..	283	74	31	105	..	9,452	
1916	1,684	50	1,734	7,894	..	..	255	57	31	88	..	9,971	
1917	1,755	59	1,814	6,646	..	..	266	49	35	84	..	8,800	
1918	416	81	497	3,425	..	..	146	49	29	78	..	4,146	
1919	600	61	661	3,739	..	..	27	0	22	22	..	4,449	
1920	869	20	889	2,915	..	..	30	0	17	17	..	3,851	
1921	1,203	43	1,246	2,457	..	..	57	5	17	22	..	3,782	
1922	1,437	55	1,492	3,012	..	..	134	7	17	24	..	4,662	
1923	1,503	52	1,555	3,573	..	..	133	6	15	21	..	5,282	
1924	1,631	62	1,693	4,231	..	..	126	5	17	22	..	6,072	
1925	2,027	82	2,109	4,737	..	..	195	6	19	25	..	7,066	
1926	2,412	75	2,487	5,586	..	..	218	11	19	30	..	8,321	
1927	3,022	82	3,104	6,896	..	..	254	10	22	32	..	10,286	
1928	3,576	106	3,682	7,504	..	..	250	8	28	36	..	11,472	
1929	4,335	154	4,539	8,652	1	..	266	9	24	33	18	13,509	
1929	6,057	468	6,525	10,283	6	..	342	12	39	51	75	17,282	
Special
1930	2,198	56	2,254	2,950	2	..	84	5	14	19	32	5,341	
1931	8,064	555	8,619	13,217	6	..	326	14	76	90	134	22,392	
1932	7,710	930	8,640	12,234	10	..	248	34	62	96	184	21,413	
1933	1	..	5,474	15,390	21	..	196	155	49	204	196	21,489	
1934	17	..	4,836	608	..	..	75	16	59	75	..	24,238	
1935	3,370	..	954	4,324	..	..	242	..	..	..	..	..
1936	3,170	..	1,195	4,365	..	..	19,243	..	..	..	..	25,138	
1937	2,990	1,044	4,034	19,348	..	..	391	..	..	..	..	27,892	
1938	2,932	1,383	4,315	21,745	..	..	914	301	385	167	552	308	
1939	2,675	2,340	5,015	21,692	..	..	936	422	474	196	670	401	
1940	2,156	2,387	4,543	22,130	..	..	1,231	477	540	222	762	491	
	1,878	2,319	4,197	22,184	..	..	1,839	502	540	222	762	477	
	1,878	2,319	4,197	22,115	2,443	538	540	222	762	477	

* Footnotes for Table 2 follow on p. 6.

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^a Prior to 1945, the petroleum-producing region of western Ukraine was the eastern Galician region of Poland.
^b Source of data for 1821-1913: ¹ (Footnote references in arabic numerals are to sources listed in the Appendix.) The Zavoiko data were adjusted to equal Gubkin regional cumulative totals through 1913. The Zavoiko unadjusted total USSR production of petroleum through 1913 is 214,203,000 metric tons; the Gubkin cumulative total is 214,-180,000 metric tons. The difference for this entire period through 1913 is 23,000 metric tons, about .01 percent. This small difference indicates that the Zavoiko and Gubkin data for this period are from the same original sources. Zavoiko data are given in terms of barrels. The units were converted to metric tons, using the regional factors given by Zavoiko. The Gubkin data are given in metric tons. For 1914 to 1929-30 and special quarter 1930; Region XB distribution is from Zavoiko.

^c Less than 0.5 thousand metric tons.

^d Source of data for 1914 to 1926-27.²

^e Total USSR and Regions IV and V data on production of petroleum are from this source. Remaining distribution of production is prorated from Zavoiko and Gubkin.
r.4.
r.5.
r.6.
r.7.
r.8.
r.9.

^f Regional distribution of production was prorated from Zavoiko — except Region Ib, which is from source 4 — and deducted from the total of Regions VI and VIII.

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TABLE 3
Production of Crude Oil in the USSR by Economic Regions
1941-53.

Year	Region Ib		Region III		Region IV		Region V and VIII		Regions VI and VII		Region Xa		Region Xb		Region XII	
	Ukhta		Ukraine		Groznyy	Maykop	Azerbaijan	Ural-Volga	Emba	Sredaz-	Turkmen-	neft'	Total	Sakhalin	Total	
	Total	Dagestan	Kuban	Total	Georgia	Volga	Emba	neft'	neft'	Sredaz-	Turkmen-	neft'	Total	Sakhalin	Total	
1941 ^c	0.1	^b	^b	<i>na</i>	3.0	24.7	2.4	0.5	<i>na</i>	<i>na</i>	<i>na</i>	0.7	0.5	31.9		
1942 ^c	0.1	^b	^b	<i>na</i>	0.0	18.0	2.5	0.4	<i>na</i>	<i>na</i>	<i>na</i>	0.7	0.4	22.1		
1943 ^c	0.1	^b	^b	<i>na</i>	1.0	11.0	2.6	0.5	<i>na</i>	<i>na</i>	<i>na</i>	0.9	0.6	16.7		
1944 ^c	0.1	^b	^b	<i>na</i>	1.8	10.9	2.7	0.6	<i>na</i>	<i>na</i>	<i>na</i>	0.9	0.8	17.8		
1945 ^d	0.2	0.2	1.6	0.4	2.0	11.5	2.7	0.7	0.6	0.5	1.1	1.0	1.0	19.4		
1946 ^d	0.2	0.3	2.0	0.5	2.5	11.6	3.7	0.8	0.7	0.9	1.6	1.0	1.0	21.7		
1947 ^d	0.3	0.3	2.6	0.7	3.3	13.1	5.2	0.8	1.0	1.0	2.0	1.0	1.0	26.0		
1948 ^d	0.3	0.3	3.0	0.9	3.9	13.8	6.7	0.8	1.3	1.3	2.6	1.0	1.0	29.4		
1949 ^d	0.4	0.4	3.2	1.5	4.7	14.5	8.4	1.0	1.6	1.6	3.2	1.0	1.0	33.6		
1950 ^d	0.4	0.4	3.3	2.5	5.8	14.8	10.3	1.1	2.0	1.7	3.7	1.1	1.1	37.6		
1951 ^e	0.4	0.5	<i>na</i>	<i>na</i>	6.0	15.1	13.4	1.4	<i>na</i>	<i>na</i>	<i>na</i>	3.7	1.1	41.6		
1952 ^f	0.5	0.5	<i>na</i>	<i>na</i>	6.0	15.7	16.5	1.4	<i>na</i>	<i>na</i>	<i>na</i>	3.9	1.1	45.6		
1953 ^f	0.5	0.5	<i>na</i>	<i>na</i>	6.0	16.5	19.2	1.5	2.7	1.6	4.3	1.1	1.1	49.6		

^a The data have been selected from best available published sources and are subject to revision when more accurate data are available.

^b Prior to 1945 the petroleum-producing region of western Ukraine was the eastern Galician area of Poland.

^c Total Soviet production of petroleum and distribution to eastern and western areas were taken from this source. Regional distribution was prorated and interpolated between 1940 and 1945.

^d Figures for total Soviet production are from source 11; regional distribution is prorated from source 12.

^e Total Soviet production was taken from source 11, and regional distribution was prorated from this source (13), with minor adjustments.

^f Total Soviet production was taken from source 11, and regional distribution was taken from this source (14), with minor adjustments.

^g Total Soviet production was taken from source 11, and regional distribution was taken from this source (15), with minor adjustments.

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TABLE 4

Production of Crude Oil in Albania^a
1929-53

Thousand Metric Tons

<u>Year</u>	<u>Total</u>	<u>Year</u>	<u>Total</u>
1929	1	1942	133 ^b
1930	2	1943	134 ^b
1931	2	1944	52
1932	4	1945	40
1933	5	1946	151
1934	8	1947	300 ^b
1935	12	1948	225 ^b
1936	48	1949	328 ^b
1937	88	1950	315 ^b
1938	125	1951	360 ^b
1939	139 ^b	1952 ^c	390 ^b
1940	183 ^b	1953 ^d	420 ^b
1941	165 ^b		

^a Source of data for 1929-51: ¹⁶; conversion factor of 6.672 barrels per metric ton from ¹⁷.

^b The data have been selected from best available published sources and are subject to revision when more accurate data are available.

^c An interpolation.

^d ¹⁸.

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TABLE 5

Production of Crude Oil in the Soviet Zone of Austria
1933-53

Thousand Metric Tons

Year	Total	Year	Total
1933 ^a	1	1944	1,213
1934	4	1945	445
1935	7	1946	845
1936	7	1947	940
1937	33	1948	960
1938	57	1949	1,250
1939	144	1950	1,500
1940	413	1951	2,300
1941	652	1952	2,800
1942	871	1953 ^b	3,079 ^c
1943	1,104		

^a Source of data from 1933-52: ¹⁰.

^b Data on 1953 production of crude oil in the Soviet Zone of Austria are based on reported production for the first 8 months (January 1953 to August 1953) and the extrapolation of the last 4 months at the August rate.²⁰

^c Data selected from best available published sources. Subject to revision when more accurate data are available.

Production of Crude Oil in Bulgaria (Estimate for 1953).

No quantitative estimates of production of crude oil in Bulgaria have been published. It is not certain that commercial production has been established, but the following brief resume indicates that actual commercial production of crude oil in Bulgaria started in 1953. Estimated 1953 crude oil production is 25,000 metric tons.

In 1950, oil prospecting was started by Soviet engineers in the Lake Shabla area of Bulgaria. Actual exploitation of a newly discovered petroleum deposit was begun in the spring of 1952.²¹

Prior to 24 March 1952, three productive oil wells were completed near Balchik.²²

By August 1952, 15 wells had been drilled for petroleum exploration and development in the Kavarna region of Dobruja.²³

As of February 1953, fourteen oil wells had been completed and connected to an oil gathering system in southern Dobruja near Kavarna. So far, the oil has been sent to Rumania for refining.²⁴

In February 1953, work was in progress in the oil fields discovered between Kavarna and Shabla on the Black Sea about 40 kilometers from Dobrich. No oil is yet being withdrawn because further test borings must be made. A refinery is to be erected at Kavarna.²⁵

As of December 1953, drilling for oil has allegedly been done in five areas: Shabla, Galata, Kamchiya River Valley, Aytoska River Valley at

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Bulgarovo, and at Rezovo. Oil strikes have been reported at Shabla, Bulgarovo, and Rezovo. At Bulgarovo, 2 wells are reported producing, and at Rezovo, 1 well is reported producing. The production allegedly had not yet reached appreciable quantities as of the middle of 1953. The oil produced is shipped to Rumania or to the USSR.²⁶

From the foregoing sources, it appears that from 3 to 14 wells in Bulgaria produced oil during a part of 1953. If an average of 10 wells produced continuously for 6 months at an average daily rate of 100 barrels per well, the total production for 1953 would be 25,000 metric tons. This estimate is used as the tentative crude oil production in Bulgaria for 1953.

TABLE 6

Production of Crude Oil in Czechoslovakia
1919-53

Thousand Metric Tons

Year	Total	Year	Total
1919 ^a	7	1937 ^b	18
1920 ^a	10	1938 ^b	19
1921 ^a	14	1939 ^b	21
1922 ^b	18	1940 ^b	30
1923 ^c	11	1941 ^b	35
1924 ^d	11	1942 ^b	36
1925 ^a	11	1943 ^b	36
1926 ^e	22	1944 ^b	32
1927 ^f	16	1945 ^b	13
1928 ^g	14	1946 ^b	29
1929 ^g	14	1947 ⁱ	31
1930 ^g	23	1948 ⁱ	30
1931 ^g	20	1949 ⁱ	43
1932 ^g	19	1950 ⁱ	43
1933 ^h	18	1951 ^k	52
1934 ^h	26	1952 ^k	87
1935 ^h	20	1953 ^l	114 ^j
1936 ^h	19		

^a 27^b 28^c 29^d 30^e 31^f 32^g 33^h 34ⁱ 35^j 36^k 37^l 38

¹ The data have been selected from best available published sources and are subject to revision when more accurate data are available.

^m 39ⁿ 40^o 41^p 42^q 43^r 44^s 45^t 46^u 47^v 48^w 49^x 50^y 51^z 52^{aa} 53^{bb} 54^{cc} 55^{dd} 56^{ee} 57^{ff} 58^{gg} 59^{hh} 60ⁱⁱ 61^{jj} 62^{kk} 63^{ll} 64^{mm} 65ⁿⁿ 66^{oo} 67^{pp} 68^{qq} 69^{rr} 70^{ss} 71^{tt} 72^{uu} 73^{vv} 74^{ww} 75^{xx} 76^{yy} 77^{zz} 78^{aa} 79^{bb} 80^{cc} 81^{dd} 82^{ee} 83^{ff} 84^{gg} 85^{hh} 86ⁱⁱ 87^{jj} 88^{kk} 89^{ll} 90^{mm} 91ⁿⁿ 92^{oo} 93^{pp} 94^{qq} 95^{rr} 96^{ss} 97^{tt} 98^{uu} 99^{vv} 100^{ww} 101^{xx} 102^{yy} 103^{zz} 104^{aa} 105^{bb} 106^{cc} 107^{dd} 108^{ee} 109^{ff} 110^{gg} 111^{hh} 112ⁱⁱ 113^{jj} 114^{kk} 115^{ll} 116^{mm} 117ⁿⁿ 118^{oo} 119^{pp} 120^{qq} 121^{rr} 122^{ss} 123^{tt} 124^{uu} 125^{vv} 126^{ww} 127^{xx} 128^{yy} 129^{zz} 130^{aa} 131^{bb} 132^{cc} 133^{dd} 134^{ee} 135^{ff} 136^{gg} 137^{hh} 138ⁱⁱ 139^{jj} 140^{kk} 141^{ll} 142^{mm} 143ⁿⁿ 144^{oo} 145^{pp} 146^{qq} 147^{rr} 148^{ss} 149^{tt} 150^{uu} 151^{vv} 152^{ww} 153^{xx} 154^{yy} 155^{zz} 156^{aa} 157^{bb} 158^{cc} 159^{dd} 160^{ee} 161^{ff} 162^{gg} 163^{hh} 164ⁱⁱ 165^{jj} 166^{kk} 167^{ll} 168^{mm} 169ⁿⁿ 170^{oo} 171^{pp} 172^{qq} 173^{rr} 174^{ss} 175^{tt} 176^{uu} 177^{vv} 178^{ww} 179^{xx} 180^{yy} 181^{zz} 182^{aa} 183^{bb} 184^{cc} 185^{dd} 186^{ee} 187^{ff} 188^{gg} 189^{hh} 190ⁱⁱ 191^{jj} 192^{kk} 193^{ll} 194^{mm} 195ⁿⁿ 196^{oo} 197^{pp} 198^{qq} 199^{rr} 200^{ss} 201^{tt} 202^{uu} 203^{vv} 204^{ww} 205^{xx} 206^{yy} 207^{zz} 208^{aa} 209^{bb} 210^{cc} 211^{dd} 212^{ee} 213^{ff} 214^{gg} 215^{hh} 216ⁱⁱ 217^{jj} 218^{kk} 219^{ll} 220^{mm} 221ⁿⁿ 222^{oo} 223^{pp} 224^{qq} 225^{rr} 226^{ss} 227^{tt} 228^{uu} 229^{vv} 230^{ww} 231^{xx} 232^{yy} 233^{zz} 234^{aa} 235^{bb} 236^{cc} 237^{dd} 238^{ee} 239^{ff} 240^{gg} 241^{hh} 242ⁱⁱ 243^{jj} 244^{kk} 245^{ll} 246^{mm} 247ⁿⁿ 248^{oo} 249^{pp} 250^{qq} 251^{rr} 252^{ss} 253^{tt} 254^{uu} 255^{vv} 256^{ww} 257^{xx} 258^{yy} 259^{zz} 260^{aa} 261^{bb} 262^{cc} 263^{dd} 264^{ee} 265^{ff} 266

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TABLE 7

Production of Crude Oil in Hungary
1937-53

Thousand Metric Tons

<u>Year</u>	<u>Total</u>	<u>Year</u>	<u>Total</u>
1937 ^a	2	1946 ^s	674
1938 ^a	38	1947 ^h	567
1939 ^b	145	1948 ⁱ	499
1940 ^c	247	1949 ^h	497
1941 ^d	417	1950 ^j	511 ^x
1942 ^e	660	1951 ^l	535 ^x
1943 ^f	832	1952 ^m	570 ^x
1944 ^g	823	1953 ⁱ	600 ^x
1945 ^g	658		

^a 37^b 38^c 39^d 40^e 41^f 42^g 43^h 44ⁱ 45^j 46^l 47^m 48^x The data have been selected from best available published sources and are subject to revision when more accurate data are available.ⁱ Interpolated.

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TABLE 8

Production of Crude Oil in Poland by Districts

1874-1947

Thousand Metric Tons

Year	East Galicia	West Galicia	Total	Year	East Galicia	West Galicia	Total
1874 ^a	na	na	21	1911 ^f	na	na	1,493
1875	na	na	22	1912 ^g	1,027	160	1,187
1876	na	na	23	1913 ^g	897	190	1,087
1877	na	na	24	1914 ^h	na	na	832
1878	na	na	24	1915 ^h	na	na	732
1879	na	na	30	1916 ^h	na	na	921
1880	na	na	32	1917 ⁱ	729	123	852
1881	na	na	40	1918 ^j	719	106	825
1882	na	na	46	1919 ^k	na	na	842
1883	na	na	51	1920 ^k	na	na	775
1884	na	na	57	1921 ^k	na	na	714
1885	na	na	65	1922 ^k	na	na	722
1886 ^b	na	na	43	1923 ⁱ	na	na	744
1887	na	na	48	1924 ^l	na	na	779
1888	na	na	65	1925 ^m	756	65	821
1889	na	na	72	1926 ⁿ	732	73	805
1890	na	na	92	1927 ^o	641	82	723
1891	na	na	88	1928 ^p	667	76	743
1892	na	na	90	1929 ^q	601	74	675
1893	na	na	96	1930 ^r	578	85	663
1894	na	na	132	1931 ^s	532	98	630
1895	na	na	215	1932	471	96	567
1896	na	na	340	1933	455	96	551
1897	na	na	310	1934	428	100	528
1898	na	na	323	1935	416	99	515
1899	na	na	316	1936	401	109	510
1900	na	na	326	1937 ^t	383	118	501
1901 ^c	343	109	452	1938 ^t	371	136	507
1902 ^d	na	na	576	1939 ^u	na	na	525
1903 ^d	na	na	728	1940	na	na	524
1904 ^e	661	166	827	1941	na	na	449
1905	641	161	802	1942	na	na	459
1906	641	119	760	1943	na	na	472
1907	1,078	98	1,176	1944	na	na	405
1908	1,652	102	1,754	1945	na	105	105
1909	2,001	76	2,077	1946 ^w	na	117	117
1910 ^f	1,685	78	1,763	1947 ^w	na	128	128

^a Source of data for 1874-85: ⁴⁸. A conversion factor of 7.429 barrels per metric ton was used for converting the data in this source (48) to metric tons. This conversion factor was computed for comparison with data in source 49 for the period 1886 to 1905.

^b Source of data for 1886-1900: ⁴⁹.

^c ⁶⁰

^d ⁶¹

^e Source of data for 1904-09: ⁵².

^f ⁵⁸

^g ⁶⁴

^h ⁶⁵. A conversion factor of 7,400 barrels per metric ton was computed from comparison with data for 1906 to 1913.

ⁱ Total from ⁵⁶; distribution prorated from ⁵⁷.

^j ⁵⁸

^k ⁵⁹

^l ⁶⁰. A conversion factor of 7,337 barrels per metric ton (taken from source 30) was used.

^m ⁶¹

ⁿ ⁶²

^o ⁶³

^p ⁶⁴

^q ⁶⁵

^r ⁶⁶

^s Source of data for 1931-36: ⁵⁷.

^t ⁶⁸

^u Source of data for 1939-45: ⁶⁶. A conversion factor of 7,434 barrels per metric ton, computed from comparison with 1937-38 data in source 68, was used.

^v East Galicia of Poland was ceded to the USSR in 1945. Production data for this area for 1945 and after are included in Region III, USSR, Table 3.

^w ⁷⁰

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TABLE 9

Production of Crude Oil in Poland
1948-53^a

Thousand Metric Tons

<u>Year</u>	<u>Total</u>
1948 ^b	140
1949 ^b	152
1950 ^c	162
1951 ^d	175
1952 ^d	195
1953 ^e	220

^a The data have been selected from best available published sources and are subject to revision when more accurate data are available.

^b ⁷¹. A conversion factor of 7.419 barrels per metric ton, derived from source 17, was used.

^c ⁷². A conversion factor of 7.419 barrels per metric ton, derived from source 17, was used.

^d ⁷³.

^e ⁷⁴.

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TABLE 10

Production of Crude Oil in Rumania by Departments and Districts *
1857-1947*Thousand Metric Tons*

Year	Ploesti District				Rumania Total
	Department of Prahova	Department of Dambovitza	District Total	Department of Buzau	
1857 *	b	b	b	b	b
1858	b	b	b	b	b
1859	1	b	1	b	1
1860	b	1	1	b	1
1861	b	1	1	b	2
1862	b	1	1	b	3
1863	1	2	3	b	4
1864	1	2	3	b	5
1865	1	3	4	b	6
1866	1	3	4	b	7
1867	2	4	6	b	8
1868	2	4	6	b	8
1869	2	4	6	b	8
1870	1	4	5	5	12
1871	2	4	6	5	13
1872	2	3	5	7	13
1873	3	2	5	8	14
1874	1	3	4	8	14
1875	2	3	5	8	15
1876	2	3	5	8	15
1877	2	3	5	8	15
1878	2	3	5	7	15
1879	2	3	5	7	15
1880	3	3	6	7	16
1881	4	3	7	7	17
1882	5	4	9	7	19
1883	6	3	9	7	19
1884	15	4	19	7	29
1885	13	4	17	7	27
1886	9	4	13	7	23
1887	9	5	14	8	25
1888	9	10	19	8	30
1889	10	15	25	10	41
1890	10	25	35	11	53
1891	11	38	49	11	68
1892	16	47	63	11	83
1893	17	35	52	10	75
1894	26	19	45	9	71
1895	37	16	53	9	80
1896	41	15	56	9	82
1897	69	16	85	7	110
1898	129	19	148	12	180
1899	187	23	210	19	250
1900	172	29	201	24	250
1901	233	17	250	6	270
1902	259	33	292	5	310
1903	346	22	368	6	384
1904	456	26	482	9	501
1905	568	25	593	13	615
1906	846	20	866	12	887
1907	1,078	32	1,110	10	1,129
1908	1,096	26	1,122	11	1,148
1909	1,223	30	1,253	25	1,297
1910	1,245	43	1,288	40	1,352
1911	1,385	69	1,454	63	1,545
1912	1,615	74	1,689	87	1,805

* Footnotes for Table 10 follow on p. 15.

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TABLE 10 (Continued)

Production of Crude Oil in Rumania by Departments and Districts
1857-1947*Thousand Metric Tons*

Year	Ploesti District				Rumania Total
	Department of Prahova	Department of Dambovitza	District Total	Department of Buzau	
1913	1,678	42	1,720	126	1,886
1914	1,537	49	1,586	148	1,784
1915	1,431	101	1,532	112	1,673
1916	737	72	809	57	899
1917	580	55	635	32	724
1918	678	171	849	69	969
1919	690	136	826	49	921
1920	806	125	931	57	1,034
1921	870	165	1,035	90	1,163
1922	1,056	179	1,235	92	1,366
1923	1,077	307	1,384	90	1,516
1924	1,476	226	1,702	101	1,851
1925	1,849	302	2,151	115	2,316
1926	2,266	800	3,066	121	3,241
1927	2,470	1,009	3,479	116	3,661
1928	3,011	1,074	4,085	113	4,270
1929	3,371	1,291	4,662	86	4,827
1930	4,243	1,378	5,621	61	5,744
1931	4,247	2,281	6,528	64	6,658
1932	3,646	3,579	7,225	64	7,350
1933	3,326	3,937	7,263	66	7,387
1934	3,922	4,439	8,361	59	8,473
1935	3,754	4,537	8,291	52	8,394
1936	3,606	5,000	8,606	50	8,704
1937	3,744	3,316	7,060	46	7,153
1938	3,975	2,545	6,520	43	6,610
1939	3,990	2,162	6,152	42	6,240
1940	3,845	1,884	5,729	38	5,810
1941	3,742	1,635	5,377	35	5,453
1942	3,863	1,722	5,585	30	5,665
1943	3,472	1,695	5,167	57	5,273
1944	2,292	1,131	3,423	54	3,525
1945	3,152	1,362	4,514	112	4,680
1946	2,846	1,239	4,085	118	4,257
1947	2,458	1,213	3,671	118	3,842

^a Source of data for 1857-1936: ⁷⁶.^b Less than 0.5 thousand metric tons.^c A total of 517 metric tons crude oil production was reported for the Maramures District during 1919-27.
This production is included in total.^d Source of data for 1937-45. ⁷⁶.^e ⁷⁷^f ⁷⁸ A conversion factor of 7.430 barrels per metric ton was derived from comparison with 1940-45 data.

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Table 11

Production of Crude Oil in Rumania by Departments and Districts
1948-53^a*Thousand Metric Tons*

Year	Ploesti-Pitesti Area				Department of Bacau		Rumania Total
	Department of Prahova	Department of Dambovitzta	Pitesti District	Area Total	Bazau	Bacau	
1948 ^b	2,712	1,257	156	4,125	172	120	4,417
1949 ^b	2,833	1,221	338	4,392	227	196	4,815
1950 ^b	3,075	1,215	577	4,867	302	296	5,465
1951 ^c	3,613	1,287	946	5,846	428	454	6,728
1952 ^d	4,007	1,286	1,464	6,757	573	657	7,987
1953 ^e	4,139	1,197	2,110	7,446	714	886	9,046

^a The data have been selected from best available published sources and are subject to revision when more accurate data are available.^b ⁷⁰. Distribution was prorated by interpolation between the years 1947 and 1951. The Pitesti District is the area remainder in this prorated interpolation.^c ⁸⁰.^d ⁸¹. Distribution was prorated by extrapolation of 1950-51 percentage rate of change.^e ⁸². This source states that total Rumanian crude oil production was (a) 236 percent of 1947, and (b) 113 percent of 1952. This indicates 1953 crude oil production of (a) 9,067,000 metric tons, or (b) 9,025,000 metric tons, an average indicated value of 9,046,000 metric tons. A distribution estimate was derived by proration of extrapolation of 1951-52 percentage rate of change.

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TABLE 12

Production of Crude Oil in China by Provinces
1937-53^a

Thousand Metric Tons

Year	Kansu	Sinkiang	Shensi	Total
1937	0	0	b	b
1938 ^c	0	3	b	3
1939 ^c	0	3	b	3
1940 ^c	1	6	b	7
1941 ^d	2	9	b	11
1942 ^e	17	20	b	37
1943 ^f	38	18	b	56
1944 ^f	62	2	b	64
1945 ^f	59	2	b	61
1946 ^f	65	2	b	67
1947 ^f	51	2	b	53
1948 ^{g,h}	60	2	b	62
1949 ^k	86	2	b	88
1950 ^g	117	10	7	134
1951 ⁱ	150	20	10	180
1952 ^j	200	30	15	245
1953 ^{k,l}	280	40	20	340

^a The data have been selected from best available published sources and are subject to revision when more accurate data are available.

^b Less than 500 metric tons.

^c 88

^d 84

^e 85

^f 86

^g 87

^h For the period 1948-53 there are no regional annual crude oil production data published. Data shown are based upon qualitative data from sources cited. Conversion factor of 7.284 barrels per metric ton is used. This is equivalent to an average API gravity of 32° C which is indicated by field reports.⁸⁸

ⁱ Interpolated.

^j 89

^k 90

^l Indicated probable values from sources cited.

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TABLE 13

Production of Natural Gas and Natural Gas Liquids in the Soviet Bloc in the Soviet Bloc by Countries
1930-53

Thousand Metric Tons

Year	USSR *		Soviet Zone of Austria ^b		Czechoslovakia ^b		Hungary ^b		Poland ^c		Romania ^d		China ^e	
	Natural Gas, Liquids		Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids	Natural Gas, Liquids
	Natural Gas ^f	Liquids												
1930	4,170	55	0	0	3	N.A.	0	0	460	39	1,140	90		
1931	6,910	79	0	0	N.A.	N.A.	0	0	448	41	1,307	123		
1932	8,100	96	^g	^g	N.A.	N.A.	2	N.A.	413	39	1,418	151		
1933	8,820	87	^g	^g	N.A.	N.A.	2	N.A.	437	42	1,714	169		
1934	13,280	66	14	N.A.	N.A.	N.A.	2	N.A.	443	41	1,809	192		
1935	15,590	87	^g	^g	N.A.	N.A.	2	N.A.	459	40	2,013	219		
1936	18,400	116	^g	^g	N.A.	N.A.	3	N.A.	456	40	1,897	282		
1937	18,480	136	^g	^g	N.A.	N.A.	3	N.A.	502	41	1,758	306		
1938	18,780	167	N.A.	N.A.	N.A.	N.A.	8	N.A.	552	43	1,924	276		
1939	19,790	189	N.A.	N.A.	N.A.	N.A.	13	N.A.	314	N.A.	1,744	250		
1940	20,910	221	N.A.	N.A.	N.A.	N.A.	2	N.A.	30	N.A.	N.A.	240		
1941	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	2	N.A.	36	N.A.	N.A.	1,600	198	
1942	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	N.A.	44	N.A.	N.A.	1,864	194	
1943	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	N.A.	66	N.A.	N.A.	1,930	190	
1944	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1	N.A.	74	N.A.	N.A.	1,393	139	
1945	2,300	100 ^a	27	N.A.	N.A.	N.A.	1	N.A.	72	N.A.	96	2	1,741	139
1946	2,600	200 ^a	43	N.A.	N.A.	N.A.	3	N.A.	86	N.A.	141	3	1,893	N.A.
1947	3,200	300 ^a	50	N.A.	N.A.	N.A.	5	N.A.	95	N.A.	140	5	2,132	58
1948	3,500	400 ^a	49	N.A.	N.A.	N.A.	48	N.A.	48	N.A.	153	8 ^b	N.A.	52
1949	3,700	600 ^a	51	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	163	13 ^b	N.A.	N.A.	
1950	3,900	800 ^a	47	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	208	15 ^b	N.A.	N.A.	
1951	4,200	1,200 ^a	46	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	217	16 ^b	2,944	N.A.	
1952	4,300	2,100 ^a	46	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	227	17 ^b	N.A.	N.A.	
1953	4,500	3,100 ^a	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	250	N.A. ^c	N.A.	N.A.	

^a 91

^b 92

^c 108

^d 94

^e 95

^f Less than 500 metric tons.

^g The data have been selected from best available published sources and are subject to revision when more accurate data are available.

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* Conversion factor for natural gas is 946 metric tons per million cubic meters. This factor assumes that the gas is "dry" gas of the same specific gravity as the average of such gas in the US in 1950 as indicated by analysis of data given by Carney.

^a Less than 500 metric tons.

^b The data have been selected from best available published sources and are subject to revision when more accurate data are available.

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APPENDIX

SOURCES

Evaluations, following the classification entry and designated "Eval.," have the following significance:

<u>Source of Information</u>	<u>Information</u>
Doc. — Documentary	1 — Confirmed by other sources
A — Completely reliable	2 — Probably true
B — Usually reliable	3 — Possibly true
C — Fairly reliable	4 — Doubtful
D — Not usually reliable	5 — Probably false
E — Not reliable	6 — Cannot be judged
F — Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which may carry the field evaluation "Documentary".

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

1. B. Zavoico, "Russian Oil Industry in 1936," *Transactions of the American Institute of Mining and Metallurgical Engineers*, Vol. 123, (Petroleum Development and Technology, 1936), New York, 1937. pp. 620-623. U. Eval. RR B-2.

2. J. M. Gubkin, "Petroleum Reserves and Their Utilization" Section B, Part 1, "Power Resources, Development and Utilization in the USSR," presented at the Third World Power Conference, Washington, D. C. 1936. Published in *Transactions of the Third World Power Conference*, Vol. 11, Washington, 1939. pp. 431-457. U. Eval. RR B-2.

3. "Socialist Construction in the USSR," *Statistical Abstract*, Central Administration of Economic and Social Statistics of the State Planning Commission of the USSR, Moscow, 1936. U. Eval. RR B-2.

4. Gubkin, *op. cit.*

5. "Socialist Construction in the USSR," *op. cit.*

6. "Socialist Construction in the USSR," *op. cit.* Table 4, p. 138 and Table 11, p. 143.

7. Gubkin, *op. cit.* Table 9, p. 434.

8. B. Zavoico, "Russian Oil Industry in 1941," *Transactions of the American Institute of Mining and Metallurgical Engineers*, Vol. 146, (Petroleum Development and Technology, 1941), New York, 1942. pp. 547-550. U. Eval. RR B-2.

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